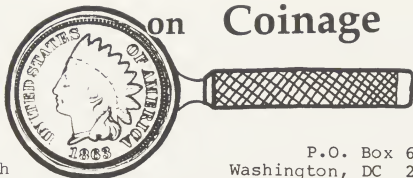
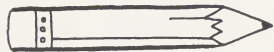


# INSIGHT



## on Coinage

Institute for  
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### EDITORIAL

October is a magical month. Halloween is still a few days away yet we feel we've been a victim of some TRICK or TREAT pranks by the U.S. Postal Service already!

At the ANA Convention, Ken Bressett, a noted numismatic writer and one of our fans, asked if we had received a critical letter he had written about this newsletter. We knew nothing of his letter but said that it may be waiting for us on our return home. Guess what we just got? A letter from Ken postmarked July 24 (TRICK)! In fairness to the USPS, our PO Box number was incorrect; yet they still found us (TREAT)!

Ken knows more about writing than we ever will, so we will share his criticism. He writes that the standard definitions for numismatic terms are already published by the ANA in the "new" edition of the ANA Grading Guide. Go out and buy it, it's improved. We believe some of the definitions STILL need to be changed and standardized! Watch TOO HOT TO HANDLE after our column on Whizzing appears in Numismatic News!

Next, Ken writes, "...you could make one more minor change that would make your writing much more enjoyable ... I refer to your habit of writing in the first person plural." Ken was taught that only monarchs and gods were permitted to speak like that. He continues, "I don't mind it when Liz (QE II) says something to me like 'We request your presence at dinner next Friday', but it somehow sounds different when a mortal says' ...it makes US think...' or 'WE read that...' Perhaps you have some extra help around there, and there really are two of you reading and thinking about what you write for us. If so, put one of them to work re-reading your past issues of Insight, and let the other one write in the first person singular." In the interest of good writing...ABRACADABRA! POOF!

### ADVICE AND DISSENT

One of the most frequently asked questions I am asked at seminars or educational forums regarding coin grading is what power magnification and what type of lighting I use at the grading and authentication laboratory to examine coins. My answer to this question has been the same for nearly twenty years. In this article, I'll answer this question again in greater detail than is possible during an oral presentation due to time constraints; and also examine some of the options you have in regard to magnification and lighting for coin exam.

While the science and methodology of coin authentication which was vigorously developed and refined during my years at ANACS has remained virtually unchanged, there continues to be a great deal of change in the

way coins are examined for grading. Many of these changes have moved us further away from the refinement and precision present under the laboratory conditions of the late 1970's and early 1980's!

Much has been written about magnification and lighting, yet there is no universal consensus about either. Because of the subjective nature of grading, each of us may use any type of lighting or power of magnification we wish; however, to make an intelligent choice, you should become familiar with or at least try all the options. Often, you must use whatever light or magnification that is available. I cannot count the times dealers or collectors run up to me at a show to ask my opinion about a coin. I get the coin and their hand lens shoved into my face at the same time!

Although halogen light and 10X seem to have the most advocates at this time, I suggest you listen to all the opinions, then find what works best for you. One thing is certain, give me 30 minutes with you plus a stereo microscope, and I'll change the way you look at coins forever!

A hand lens is the most universal tool used for authentication and grading. They are available in many styles, power ranges, prices, and component quality. Often, we are forced to make a compromise when purchasing a hand lens because a single style or power of lens is not ideal for all our needs. For this reason, many numismatists will carry more than one lens at a time (a low power lens for general work and a much stronger lens for detail). If you can afford more than one quality lens, that is the best solution; otherwise, you must pick your lens more carefully.

Some guidelines to consider when purchasing a hand lens include:

- 1) Buy the best quality you can afford. You'll want a compound lens (triplet) made of optical quality glass.
- 2) The size of a lens, its diameter, will approximate its field of view (the area which can be seen at one time). Larger is better; but the higher the power, the smaller the lens and the smaller its field of view.
- 3) The higher the power, the smaller its depth of field (the distance you can move the lens from an object and still be in focus); and the closer the working distance. You will need more light to view the coin.

Everyone needs a general low-power lens. They're useful because the large lens area allows for quick scanning while viewing practically the entire coin in most series. Low power lenses also have a long focal length allowing plenty of light to reach a coin's surface because of the large working distance between the coin and the lens. We consider lenses below 5X to be low power; 4X or 5X is ideal.

Next, you should have a higher power lens in the 7X to 12X range. This will be your main lens, allowing you to grade confidently once you learn what you are looking for. DO NOT use a higher power lens to grade coins while you are a beginner. These lenses, in the 16X to 20X range, are especially useful if you collect varieties but are too strong for general grading. Many numismatists choose 10X as a comfortable power to work with. After practice, when you become proficient at grading, even 7X will be sufficient to detect cabinet friction and many alterations. Then you'll be able to break all the rules by switching back and forth between different light sources and different powers of magnification!

A handy combination set of lenses, which I like, has 3X and 4X powers which can be used together to give 7X. The 3X lens by itself is practically worthless as it doesn't magnify enough; but the 4X makes a

perfect low power lens and 7X is adequate for a mid-range power. A better combination lens has 4X and 5X which give 9X together.

You will find many different powers of magnification are recommended by numismatists to grade coins. While learning to grade, you may wish to use only one power hand lens. With more experience, experiment with other powers to determine which you prefer. In a future article, I will relate how one experienced numismatist using a 10X hand lens could see characteristics on a coin which I was viewing with a microscope! It was the power he became accustomed to over a period of forty years.

If you decide to become an advanced numismatist, eventually you will need to purchase a stereo microscope. This instrument allows you to truly see the surface of a coin. In just a few years of intensive study with a microscope, you'll know more about authentication and grading than most of the coin dealers you will encounter in the business! If you have access to one now, I recommend you learn on it AT ITS LOWEST POWER, near 4X!

A microscope gives a much closer view of a coin's surface making it easier to determine its grade or identify the characteristics you see. In just seconds, you can differentiate between original planchet surface marks which occur before striking and impact damage which a coin receives after striking. Friction wear on a coin and cleaning will often "jump-right-out". With a stereo microscope, you view coins with both eyes so you have much better depth and shade perception. It should make sense that you'll see better with two eyes than with one. That's what grading is all about. You wish to describe a coin's condition (most will say its value), so the more you see, the more precise and correct your opinion. After viewing coins with a microscope, you will be a much better grader, even without one!

You will need a stereo microscope for authentication because a hand lens is virtually useless, even in many cases when you know what diagnostics to look for!

If you purchase a microscope, there are several choices you must make. First, you will need a stereo microscope (two viewing tubes). A single tube medical scope with a revolving turret of lenses at its base is too powerful and not suited for numismatics. As before, buy the best quality you can afford. A good microscope is an investment, which will not lose its value if properly cared for. Prices for microscopes start at about \$95 and can cost thousands of dollars. You should spend about \$350 before you find one with good optics. Generally, it will take from \$850 to \$2000 to get a Brand Name. Some convenient options you should consider include "zoom power" which lets you raise and lower the power without changing eyepieces. The more expensive scopes have continuous zoom through different powers. You may purchase additional eye pieces of various powers. In this way, using a typical zoom microscope which goes from .4X to 4X, different accessories from .5X and 2X objectives, to 20X eyepieces, you have an effective range of magnification from 2X to 160X! Big deal! You will learn, when using a microscope, that most grading is done at powers between 4X and 9X. Eyepieces with a reticle are useful for making measurements of mintmarks and distances.

Most grading work is done at lower powers because you can see all or most of the coin at once. At high powers, you only get a spot view which you must keep in your memory while examining other parts of the coin. It's like using too powerful a hand lens! In a spot view of a small area, one mark can fill the entire field of view. This makes it look much more serious than it would be in a larger field. Additionally, at higher

powers you lose the depth of field. While an area of the coin's surface is in focus, parts above and below it are fuzzy. It's best to back-off the power and have a wide area in focus. Actually, most surface alterations can be detected best at lower power.

Most coin authentication is done using less than 10X except in cases where there is a need to examine a mint mark or other parts of a coin for alterations. But remember, using a microscope at 10X with both eyes and the correct lighting will beat a hand lens of any power!

Aside from proper handling, one of the most important requisites for viewing a coin is the lighting. This subject is controversial because every collector and dealer has a personal preference.

I like to say that the best equipment in the world is useless in a dark room. What is the proper lighting to use for grading and why is there so much controversy concerning this subject? Much of it comes from ignorance and a reluctance to experiment. I urge all of you to try the different light sources and choose what is best for you.

Many experts recommend a specific watt light bulb positioned at a certain angle and distance from the coin. They also recommend using the same power magnifying glass in the same location, a special "grading room". The reason for this is to keep as many variables to grading constant so that the only things to change are the coin and your moods. While you are learning to grade, you may wish to follow this approach and use the same light source, at whatever wattage and distance you are comfortable with. In this way, your eyes will become familiar with the colors and textures of different coins. But remember, the goal you will want to strive for is to be able to grade coins under any circumstances you may encounter.

You'll need enough illumination to be able to see everything that is visible on a coin. Unfortunately, this is more complicated than finding a bright light source, because your choice of ideal lighting will depend on the other equipment you use.

Fluorescent lighting is the only proper light for coin authentication EXCEPT for high power (over 60X) examination of mint marks or defects when pin-point, high intensity halogen light is needed! Fluorescent light spreads out evenly over a surface. Any defects on a coin, left from the counterfeit die, become evident by the way they blend with the natural surface. During grading, friction wear is especially easy to see with reflected fluorescent light; however, impact damage or bag marks tend to become washed-out or less detracting. The microscope makes up for this and allows us to detect even the smallest defects or bag marks hidden in cluttered parts of the design. Surface alterations also show up easily using fluorescent light. When you become familiar with viewing a coin under one type of light, it makes little sense to switch to another type of lighting to grade it!

If you don't use a microscope to grade, you'll need to use a different light source; but you'll have difficulty determining the slight amounts of wear on the high points of coins because the "bright" light sources such as halogen grading lamps recommended by many professional coin graders create a glare on the high points of coins. This hides the type of surface change which indicates friction wear at the exact place you need to look in order to determine if a coin is AU or Uncirculated! The only benefit of using a brighter light source is that hairlines, damage, and bag marks are easy to detect with a hand lens because of the flash they give off.

An ideal light for grading with a hand lens will be bright enough to accentuate the marks and hairlines; yet not so bright that it causes glare and eye strain. Fluorescent light eliminates both of these but it tends to hide marks. A variable light source which allows you to switch between low

and bright incandescent light might approach the ideal. At coin shows you have little choice of the lighting unless you bring your own equipment. I have done this and have seen others also.

Don't forget to tip and rotate a coin in the light as you view it. As you hold a coin in different orientations of the light rays, you will accentuate different marks which will be easier to see as the surface of the coin becomes "light dynamic" (see September newsletter).

For high power work with a microscope, you may wish to purchase a halogen light source, but other than this, I do not recommend that you purchase any of the optional lighting accessories. Even the fluorescent ring light accessories do not produce enough light for grading. Remember: MICROSCOPE + Fluorescent light. Authentication or grading with anything else is a compromise.

## BACK TO BASICS

Recently, I found an old picture postcard illustrating the interior of the planchet adjusting room at the Philadelphia Mint around the turn of the century. I've reproduced part of the card so that we can take a closer look at this month's topic.

\* ADJUSTMENT MARKS, n: Recessed, often parallel striations, not obliterated during minting, found on the surface of a coin which was made using a planchet that was filed to reduce its weight to standard.

Since our coins act as a medium of exchange by signifying a specific value, the mints are careful to produce a product within specific tolerances. While this was more important when precious metals were used in coinage, we can still understand this reasoning if we look at the modern vending machine industry which relies on coins meeting criteria of weight, composition, and size. Safeguards are built into vending machine mechanisms to reject slugs and even genuine coins which are out of tolerance.

The early solution to quality control regarding a coin's weight was to have each planchet weighed before it was struck! This was especially true for large gold and silver coins. Planets which were too light were returned to be melted and made into new planchets. Heavy planchets were "adjusted" to the correct weight range by removing the excess metal.

As you can see by our photo, this was done in a large room, mostly by female employees. While the postcard cannot show how tedious the work was or if conversation was permitted in the room, it allows for some interesting speculation and adds what I believe to be some newly published information about the process of adjusting planchets.

Each woman has a work-station with a pan balance, several containers, and some hand tools which appear to be a file and a wide paint brush. Each work station has a leather or fabric "apron" which is attached to the table and rolled-out to cover the worker's lap. This was to catch planchets and possibly metal filings. There is only one file at each station along with several containers. Two work stations in the foreground are empty to allow for a clear view of the operation and several containers have been placed on a chair out of the way. Because of this, we can only guess at the number of containers at each station and their use. It appears that the large square containers were for incoming and finished planchets; the smaller containers held rejected blanks, and the smallest tin was for filings. This does not account for all of the containers. Perhaps, incoming blanks to be weighed





were placed between each pair of workers in the large containers also.

Only one male supervisor (?) can be seen in the photo and the space between the tables does not look large enough to roll a cart. We can see double handles on the large containers but cannot imagine lifting one with planchets filled to the brim as the one in the photo! This leads to more questions. How were the planchets delivered and picked-up from the workers? I'll guess that during actual working conditions, the containers were not filled as high and that the ladies walked to a central location to turn in their planchets or receive more. Perhaps they were even paid by the weight of planchets they checked.

The results of the planchet adjusting process can be seen across the surfaces of many coins, especially those from the eighteenth and early nineteenth century. Our photo was taken during the late nineteenth century, so we can speculate on some important changes in the process which occurred over time, perhaps as a result of increased production demands for coinage. Coins during the time our photo was taken do not normally come with major adjustment marks! Rarely, some can be found on the raised rim of a coin but the typical marks which we refer to as adjustment marks do not appear. The fact that this step was still a part of the minting process leads me to believe that during the later nineteenth century, planchets were adjusted by filing their edges rather than their surface! This would account for the absence of adjustment marks on more modern coinage and the horizontal lines which we sometimes find in the edge reeding!

If we examine the adjustment process again, these changes make sense. Looking at the size of the marks which remain visible on struck coins, it's obvious that a large, coarse-tooth file was used. Imagine how heavy it became after several hours, especially with an overweight batch of planchets. Think about how hard it was filing a small, gold quarter eagle planchet with a large file. It won't fit between your fingers so you would have to file one half of the blank while holding the other half. How much easier would it be to hold the center of the planchet and run it over a flat, finer-tooth file which rested on the table. All that's needed is a "flick-of-the wrist".

Adjustment marks usually occur in parallel sets. As the planchet metal flows into the die during striking, all or parts of the marks become squeezed out and obliterated. Only the largest and deepest file marks are left becoming less pronounced at their end. We can distinguish adjustment marks from scratch damage by viewing the interior of the mark. A scratch will show fresher, sharp, pushed-up grooves in the surface and damage to parts of the design. Adjustment marks have a dull, original planchet "look"

to their interior with less severe borders often squeezed into a very fine line at one end.

While adjustment marks add to the "story" about a coin, most graders treat them subjectively. In commercial grading, if they are very minor, few in number, and at the borders of the coin, no deduction is made (see 1794/1795 Dollar comparison). Marks which cross the prime areas of design MAY or MAY NOT be factored into the numeric grade depending on the wear grade, eye appeal, luster, and rarity of the coin! They are ignored in technical grading to determine a coin's state of preservation (wear-grade). Often they are mentioned separately as a characteristic on the coin when it left the press. Then, Choice AU-50, w/adjustment marks is a technical grade used to describe a virtually mark-free, lustrous coin with adjustment marks and an amount of wear slightly less than allowed for the Extremely Fine grade. The same coin may be described commercially by a statement such as "AU-58, with the usual adjustment marks". After all, this coin is not your "Typical" AU (remember the surfaces are virtually mark-free with nice luster) and deserves to sell at an AU-58 price! Now, you understand why dealers hated technical grading. You might say it "adjusted" their profits.

#### COMMERCIAL versus TECHNICAL GRADING - SUMMARY

As promised in the August issue, I would like to summarize some of the differences between commercial (C) and technical (T) grading.

1. Eye Appeal/ (C) Most important aspect, includes all of the others. Even more important than the actual amount of wear. Luster must be good for higher grades. Buffed coins often grade very high.  
(T) Not as strict. Spots/tarnish/impaired luster do not lower the grade; but are mentioned. Very strict about originality.
2. Rim (C) Nicks lower the grade. Large nicks considered damage and can make a coin uncollectable.  
(T) Only large nicks or damage is mentioned, but they do not lower the grade of coins below Unc.
3. Marks (C) Any defect lowers the Mint State grade whether a mark on the original planchet or marks received after striking. Very strict on marks, especially if in a prime location.  
(T) Only marks made after striking lower the grade. Liberal on number and location. Marks on planchets which remain after striking are identified to distinguish them from damage.
4. Wear (C) Liberal on amount of wear allowed on Unc coins for many series especially gold and Type.  
(T) Very strict, none allowed for Mint State.
5. Strike (C) Considered in grade.  
(T) Not considered in grade but mentioned if unusual.
6. Time (C) Fast grading, flip through a roll. Changes over time with market conditions.  
(T) Slower, more studious. Not influenced by market.
7. Other a.(C) Based on price. (T) Based on wear.  
b.(C) Obverse weighted, over-all combined grade assigned.  
(T) Split grades, each side graded separate and equal.  
c.(C) Affected by rarity, type, composition, and age of coin.  
(T) Treats all coins equal.  
d.(C) Complicated, hard to learn, must know prices and rarity.  
(T) Easy to teach and understand.

Now let's look at some examples of coins in each group:

1. 1901 Indian cent with full luster, no marks, and lots of flyspeck carbon spots. (C) MS-63 (T) MS-65, spotted. Next, the same type coin dated 1877 (rare date). (C) MS-64 (T) MS-65, spotted. Flawless, well struck coin, hairlined from cleaning. (C) MS-63 (T) MS-65, hairlined.
2. Add a rim nick to the 1877. (C) MS-63 (T) MS-65, spotted, rim nick. 1797 Cent with EF detail, nice fields and dent on rim. (C) VF (T) Extra Fine, rim dent.
3. 1883-CC Morgan dollar with full luster, slightly-weak strike w/draw marks through the ear, and very few small scattered bagmarks. (C) MS-63 (T) MS-65, planchet striations. 1890-O Morgan dollar with usual strike and lots of pits (struck thru errors). (C) MS-60 (T) MS-65, weakly struck with planchet defects.
4. 1903 \$20 Liberty, blazing luster, no marks, very slight rub on high points. (C) MS-66 (T) Choice AU-58. Same coin with more obvious rub. (C) MS-63 (T) Choice AU-50. The strictness of technical grading made dealers go crazy. A majority of coins in many series are extremely rare in true uncirculated condition. Most technically graded Choice AU-58 coins were worth top Mint State money (more on this next month).
5. 1890-O Morgan dollar, full luster, no marks, flat strike. (C) MS-62 (T) MS-65, flat strike.
6. 1886 Morgan dollar, blazing luster, strong strike, a few bag marks. Graded in 1980, (C) MS-65 (T) MS-65. Same coin graded in 1986, (C) MS-63 (T) MS-65
- 7a. (C) Coin worth MS-65 money grades MS-65 amount of wear not important. (T) Coin worth MS-65 money, has slight wear, grades AU-58. Still worth MS-65 money! Try explaining that to a new collector.
- 7b. 1881-S Prooflike Morgan dollar, with some small field marks on the obverse. (C) P/L MS-64 (T) P/L MS-64/65. Add more marks to the obverse of the 1881-S. (C) P/L MS-63 (T) P/L MS-63/65. 1894 Morgan dollar with fully struck beautiful obverse, some marks on the reverse. (C) MS-65 (T) MS-69/MS-64.
- 7c. 1907 High Relief \$20, lightly buffed to hide the wear. (C) MS-63 (T) AU-50, polished.

COMING UP

I will be giving a free seminar for Young Numismatists at the New York International Coin Exhibition on Saturday, December 8, 1991.

Finally, if you are reading Insight for the first time, you may wish to order the back issues. Only a few complete sets remain unsold!

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